

## **Constructing a dialogic teacher's identity: a case study exploring the impact of community of practice.**

Mansour Muzil

*University of Manchester*

Drawing on recent developments in dialogic approaches to learning and teaching mathematics, my PhD study investigates how Saudi mathematics teachers develop their understanding of classroom dialogue through a professional development process in mathematics teaching. The nature of this study is qualitative. It involved an *embedded case study* focusing on a teacher development programme (TDP) for three Saudi primary mathematics teachers in relation to their use of dialogic teaching. This research draws upon the community of practice theory (Wenger, 1998). The analysis of data shows how the three math teachers' identities have been developed through their participations within the emergent community of practice. This paper will show evidence of the emergence of a new professional identity for one teacher Zayed as one case study.

**Key words: dialogic teaching; professional development, communities of practice, teachers' identities**

### **Introduction**

In mathematics education research, the community of practice theory has been increasingly used in order to develop teachers' knowledge of teaching mathematics (Graven, 2004, Lotter, Yow & Peters, 2014). The community of practice theory is a social theory of learning as social participation (Lave & Wenger (1991) and Wenger, 1998). According to Wenger (1998), there are four components for this theory see learning as doing (practice), learning as belonging (community), learning as experience (meaning) and learning as becoming (identity). Wenger (2007, p. 1) defines a 'community of practice' by people who "engage in a process of collective learning" and "share a concern or a passion for something they do and learn how to do it better as they interact regularly".

Moreover, identity becomes a research interest in mathematics education (Lerman, 2006, 2012). For example, in their argument of in their research of identity in Mathematics Education, Grootenboer, Smith & Lowrie (2006) argue that "a deeper understanding of what impacts on teaching and learning in mathematics education can be gained by foregrounding the concept of identity and exploring its explanatory potential" (p, 612). Lerman (2012) argue that "as researchers we need rich descriptive tools for analysing identity and the resources potentially available through shifts in discourses" (p. 2). In Wenger's theory, participation is essential for the development of members' identity and therefore of their learning. Moreover, Wenger's perspective on identity formation involves three distinct modes of belonging (Wenger, 1998): (1) engagement; (2) imagination; (3) alignment to contribute to the processes of identity construction. The following table shows these modes:

<b>Engagement</b>	Refers to the "active process of involvement in mutual processes of negotiation of meaning" (p. 173)
-------------------	--

<b>Imagination</b>	Refers to “the process of expanding our self by transcending our time and space and creating new images of the world and ourselves” (p. 176).
<b>Alignment</b>	Refers to “coordinating our energy and activities in order to fit within broader structures and contribute to broader enterprises” (p. 174).

Therefore, this paper is part of PhD research which using community of practice as framework for teachers’ development programme (TDP) to improve mathematics teachers’ perceptions about dialogic teaching. In Muzil (2014), I provided evidence of teachers’ improved teaching practice for Ahmad as one case of the three participants in this research. However, this paper focuses on Zayed’s identity as another case and how his participation on a community of practice constructed his professional identity in terms of classroom dialogue.

### **The research methodology**

The study applies a case study approach (Yin, 2003) to collect qualitative data. The design of this research involves an *embedded case study* focusing on a teacher development programme (TDP). An *embedded case study* design involves a larger case study containing more than one sub-unit of analysis or sub-case (Yin, 2003). The sub-cases were three mathematics teachers within this TDP and this paper only presents the data analysis of Zayed as one case study. There were two phases of data collection. The first phase was before teachers’ participation in TDP and it involved general observations in teachers’ classrooms and initial interviews with them. In this phase, five lessons were video recorded for each of the three teachers. The second phase involved the implementation of the teachers’ development programme which consisted of eight workshops with subsequent observed lessons and teacher interviews/discussions. At the end of the TDP, I conducted a semi-structured interview with each teacher to look for their perceptions and beliefs about the TDP and dialogic teaching.

### **Data analysis and results**

#### ***First: the emergent community of practice***

Prior to examining Zayed’s professional identity through data analysis, it is important to consider the effects of interactions during the TDP workshops. An analysis of these workshops shows that as Zayed and the other members participated in the TDP together, the three teachers and the researcher cultivated an emergent community of practice through mutual engagement, joint enterprise and shared repertoire (see Wenger, 1998 for more details about the properties of a community of practice). Teachers engaged in reflections on different videos of their classroom teaching and interactions with their students. Moreover, improving classroom dialogue became a common interest of Zayed and the other teachers: they considered it a joint enterprise. Consequently, in order to achieve the community’s common goal, teachers developed different teaching strategies and meanings as part of their shared repertoire.

### ***Second: Zayed's new professional identity***

The data analysis of Zayed's participation in the emergent community of practice shows evidence of his developed professional identity as one who invested his identity with dialogic teaching. The following sections provide two examples that illustrate Zayed now aligns toward open classroom questions and finding different mathematical ways to answer problems as important teaching strategies in terms of improving classroom dialogue.

#### *Toward open classroom questions*

It is clear that Zayed's identity aligns with promoting open classroom questions and responses from students to improve classroom dialogue. It is also evident that this changes the role of students. During the last week of the TDP, Zayed described his approach in an interview. Now Zayed believes that the role of the student increases in the lesson in terms of supporting the teacher. Moreover, Zayed believes that his role has become focused on managing the classroom discussion and the dialogue by engaging students on different strategies to answer a problem. He argues this change "because, I have changed my approach and used a different one that by it I ask students to help me to find the answers. I ask students about their opinions until we find something help us, and we use it for the answer". Therefore, Zayed argued in the final workshop and interview that "it is one of the most matters for the teacher that how he poses questions he needs. It is one of the most important skills that the teacher needs to learn in the dialogic teaching." He also emphasized that "the teacher need to build up from student's answers to reach the best answer for the lesson."

This aspect of Zayed's new professional identity, his regarding open classroom questions as essential to classroom dialogue, is also evident in his reflection about the change in his teaching practice. He said "in the past, there was a lot of saying "listen, do, read, pay attention and memorise", but now I ask, what is your opinion? What do you think about your classmate's response? What else do you have to say? My questions have become focused on the student and what he thinks, and imperative verbs have been stopped."

#### *Toward different mathematical ways of answering*

By the end of the TDP workshops, Zayed had come to value the strategy of finding different mathematical ways to solve problems and shared his experience with the members of the community. He indicated this experience "was a wonderful discussion with great output" as students "shared different methods for solving the problem". Zayed argued, "when a student offered a solution, another student suggested a very suitable solution, and then another student deduced a new way based on the previous answers." Here, it is apparent that Zayed is aware of how dialogue enables teachers and students to devise different ways to solve problems. Therefore, Zayed argued that each teacher needs to "be interested in answering methods and variation in these mathematical answering ways, not only algorithms and discovering suitable and new methods from which new and interesting answers could be reached."

Moreover, the analysis of Zayed's final interview highlights his conviction that improving classroom dialogue produces different ways of answering exercises or problems in mathematics classrooms. He said, "the best thing we achieved was discovering new ways to find solutions, the ways that you as a teacher had not thought of them." Thus, Zayed reflected on the change in his identity, specifically in his beliefs about use of this practice in mathematics classrooms. In his words,

“Honestly, there is important truth; in the past, it was important to me to give one or two methods to the student, and if there was one easy insured method, it would be good for the student. But now, I believe and trust in that the best for student is letting him to say what he wants...this approach makes the curriculum more effective and the class and teaching much better. I don't try to give him these ways, but he must try to reach them first. I start with him and let him complete and reach to the new idea and method.”

### Discussion and conclusion

The data analysis shows how Zayed identifies his new professional identity with dialogic teaching. This identification developed through Zayed's engagement in such shared activities as reflections on classroom practices and examination of different teaching strategies (e.g. encouraging classroom questions and seeking different ways to answer mathematical problems in order to support classroom dialogue). The argument is that Zayed's identity was constructed as a reflective practitioner in relation to the dialogic teaching through his participation in an emergent community of practice with the common interest of improving classroom dialogue.

### Reference

- Graven, M. (2004). Investigating mathematics teacher learning within an in-service community of practice: the centrality of confidence. *Educational Studies in Mathematics*, 57(2), 177–211.
- Grootenboer, P., Smith, T., & Lowrie, T. (2006). Researching identity in mathematics education: The lay of the land. *Identities, cultures and learning spaces*, 612-615.
- Lave, J. & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge: Cambridge University Press.
- Lerman, S. (2006). Learning mathematics as developing identity in the classroom. In P. Liljedhal (Ed.) *Proceedings of the Canadian Mathematics Education Study Group* (pp. 3-13). University of Ottawa.
- Lerman, S. (2012). Agency and identity: Mathematics teachers' stories of overcoming disadvantage. In *Proceedings of the 36th Conference of the International Group for the Psychology of Mathematics Education* (Vol. 3, pp. 99-106). [http://www.esri.mmu.ac.uk/mect/papers\\_11/lerman.pdf](http://www.esri.mmu.ac.uk/mect/papers_11/lerman.pdf)
- Lotter, C., Yow, J. A., & Peters, T. T. (2014). Building a community of practice around inquiry instruction through a professional development program. *International journal of science and mathematics education*, 12(1), 1-23.
- Muzil, Mansour (2014). An investigation of developing teachers' understanding of using a dialogic approach in Saudi primary mathematics classrooms. *Proceedings of the British Society for Research into Learning Mathematics* 34(2),49-54
- Wenger, E. (2007). Communities of practice: A brief introduction. Retrieved from <http://www.ewenger.com/theory>.
- Wenger, E. (1998). *Communities of practice: Learning, meaning, and identity*. Cambridge: Cambridge University Press. Windschitl.
- Yin, R. K. (2003). *Case Study Research - Design and Methods*. Thousand Oaks, London, New Dehli: Sage Publications.